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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/397,040 | 09/16/1999 | RICHARD L. WEISFIELD | 7447.0028 | 8270 |

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| EXAMINER |
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ROSENDALE, MATTHEW L

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| ART UNIT | PAPER NUMBER |
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2612

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/397,040

Applicant(s)

WEISFIELD, RICHARD L.

Examiner

Matthew L Rosendale

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 and 8 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1 and 3 - 7 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 3 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Street in view of Nakamura et al.

Referring to claim 1, Street discloses an image array in figure 2 having a plurality of pixels disposed in rows and columns. Each pixel in the image sensor of Street includes a photodiode 202 and a thin film transistor (TFT) 208. The image array further comprises a plurality of data lines, plurality of gate lines 200 – 220, and plurality of bias lines carrying a bias voltage VB. Street does not disclose a clamping diode for each pixel sensor or plurality of clamp lines interconnecting the clamping diodes in individual rows of the array where the clamp line carries a clamp voltage.

However, Nakamura teaches that it is well known to provide a clamping diode for each pixel sensor along with clamping lines to carry a clamp voltage to reduce lag and bloom in the pixel sensor. Therefore it would have been obvious to provide the clamping diode and clamp lines of Nakamura with the image sensor of Street to produce a high quality image free from lag and bloom (Col. 4, Line 38 – Col. 5, Line 40).

2. Referring to claim 3, the clamping voltage V_e keeps the photo element of Nakamura under reverse bias until being exceeded by the voltage of the clamping diode due to excessive charges in the photo element (Col. 5, Lines 21 – 40).

3. Referring to claim 4, Nakamura discloses a clamping voltage V_e being a constant voltage. Nakamura does not disclose a specific value of the constant clamping voltage. Therefore it would have been obvious to one of ordinary skill in the art to set the clamping voltage V_e between -4 and -5 volts as long as the clamping voltage is less than the bias voltage V_{cc} as disclosed by Nakamura (Col. 4, Line 38 – Col. 5, Line 40).

4. Referring to claim 5, when the photo element of Nakamura becomes overexposed the clamping diode D_n has a forward bias and drains off excessive charges from the photo element (Col. 5, Lines 21 – 40).

5. Referring to claim 6, Nakamura does not specifically disclose a forward bias voltage only that it is $1.4V$ higher than the clamp voltage (Col. 5, Lines 21 – 40). Therefore it would have

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been obvious to one of ordinary skill in the art to apply any voltage including 0.1 V as the reverse bias voltage in order to correctly operate each individual pixel.

6. Referring to claim 7, Nakamura discloses a bias voltage V_{cc} being a constant voltage. Nakamura does not disclose a specific value of the constant bias voltage. Therefore it would have been obvious to one of ordinary skill in the art to set the bias voltage V_{cc} between -8 and -10 volts (Col. 4, Line 38 – Col. 5, Line 40).

Allowable Subject Matter

Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to claim 2, the prior art fails to teach or suggest connecting the clamping diode between the storage node of the photodiode and the clamp line.

Claim 8 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Referring to claim 8, the prior art fails to teach or suggest connecting the clamping diode between the storage node of the photodiode and the clamp line.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

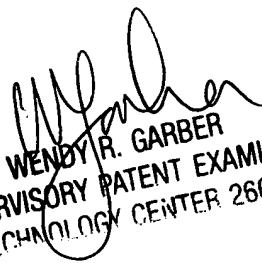
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew L Rosendale whose telephone number is (703) 305-4909. The examiner can normally be reached on Monday - Friday 8: 00am-4: 00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLR


WENDY R. GARBER
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